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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,210	09/19/2001	Karsten Reihs	- 	5185
7:	590 07/16/2003			
Sunyx Surface Nanotechnologies GmbH			EXAMINER	
c/o KUTZENB Patentanwalte	ERGER & WOLFF	TSOY, ELENA		
Theodor-Heuss	Ring 23			
D-50668 Koeln Germany,			ART UNIT	PAPER NUMBER
GERMANY	•		1762	
			DATE MAILED: 07/16/2003	,

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary Elema Tsoy	——————————————————————————————————————			
Examiner Elema Tsoy 1762		Application No.	Applicant(s)	
Elena Tsoy	Office Andrew C	09/857,210	REIHS ET AL.	
Preind for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Elederation for many by a validate under the provision of 3 °C FR 1.15(6). In ne event, however, may a reply be timely filed Elederation for many by a validate under the provision of 3 °C FR 1.15(6). In ne event, however, may a reply be timely filed Elederation for many by a validate under the provision of 3 °C FR 1.15(6). In ne event, however, may a reply be timely filed Elederation for reply a specified above is listed brain thinly (30) days, a reply which the deathery minimum of blinty (20) days will be considered interly. If the period for reply a specified above is listed brain thinly (30) days, a reply which the deathery price will be reply and will expire \$X\$ (9) MOTHS from the mailing date of this communication. If the period for reply a specified above is listed brain thinly (30) days, a reply which the form the mailing date of this communication. If the period for reply a specified above is listed brain thinly (30) days and listed previous the mailing date of this communication. If the period for reply application is extra considered previous and the provision of the second provision. If the period for reply application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 13-31 is/are replected. Claim(s) 13-31 is/are replected. Claim(s) 13-32 is/are poblected to be elected provision and/or election requirement. Application Papers John Claims(s) 13-32 is/are poblected to by the Exami	Oπice Action Summary	Examiner	Art Unit	
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Edetwinsor filter may be available used me provisions at 3° CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (b) MONTHS from the mailing date of his communication. If the period for reply specified abover, he maximum statutory period with apply and well expire SIX (b) MONTHS from the mailing date of his communication. If the period for reply specified abover, he maximum statutory period with apply and well expire SIX (b) MONTHS from the mailing date of his communication. If the period for reply specified abover, he maximum statutory period with apply and well expire SIX (b) MONTHS from the mailing date of his communication. If the period for reply is appelled abover, he maximum statutory period with apply and well expire SIX (b) MONTHS from the mailing date of his communication, even if timely flext, may reduce any example part of the communication of the communi				
HE MAILING DATE OF THIS COMMUNICATION. Satesians of time may be available under the provisions of 37 CFR 1.35(a). In no event, however, may a reply be timely filed states to the mark of the proof for reply specified above is less than into y, (0) care, a reply within the statutory minimum of thirty (0) days will be coordinated the proof for reply specified above, the maximum statory period will apply and will replete 3X (e) MONTRS from the mailing date of this communication. False to reply within the set or extended period for reply will, by statute, cause the application to become ABANDORED (32 U.S.C. § 133). False to reply within the set or extended period for reply will by statute, cause the application to become ABANDORED (32 U.S.C. § 133). Status 1) ■ Responsive to communication(s) filed on 09 May 2003. 2a) ■ This action is FINAL. 2b) ■ This action is non-final. 3) ■ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) ■ Claim(s) 13-31 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) ■ Claim(s) 13-31 is/are rejected. 7) ■ Claim(s) is/are allowed. 6) ■ Claim(s) are subject to restriction and/or election requirement. Application Papers 9) ■ The specification is objected to by the Examiner. 10) ■ The drawing(s) filed on is/are: a) ■ accepted or b) ■ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) ■ The proposed drawing correction filed on is: a) ■ approved b) ■ disapproved by the Examiner. 12) ■ The proposed drawing correction filed on is: a) ■ approved by Bernard Bern	The MAILING DATE of this communication app Period for Reply	o ars on the cover sheet	with th correspondence addre	ess
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Response to Amendment

1. Amendment filed on May 9, 2003 has been entered. Claims 13-31 are pending in the application.

Election/Restrictions

2. Upon Applicants' request Restriction requirement is withdrawn.

Claim Objections

3. Objection to claim 13 because of the informalities has been withdrawn.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 5. Rejection of claim 30 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention has been withdrawn.
- 6. The following is a quotation of the second paragraph of 35 U.S.C. 112:
 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
- 7. Rejection of claims 13-31 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn.

Claim Rejections - 35 USC § 102

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8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 9. Rejection of claims 13, 14, 16, 24, 25, 28, 29 under 35 U.S.C. 102(b) as being anticipated by Tsai (US 5,411,771) has been withdrawn.
- 10. Rejection of claims 13, 14, 16, 24, 25, 29, 31 under 35 U.S.C. 102(b) as being anticipated by Porter et al (US 4,125,108) has been withdrawn.

Claim Rejections - 35 USC § 103

- 11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 12. Claims 13-20, 24, 25, 27, 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azzopardi et al (US 6,299,981) in view of JP 04168904.

As to claims 14, 24, 25, 27, 29-31, Azzopardi et al disclose a method for producing a hydrophobic and oleophobic anti-contaminating surface on substrates (support material) in particular transparent substrates (See column 1, lines 6-14) such as glass or plastic (See column 3, lines 8-11) comprising mechanically roughening a surface of the substrate to form surface irregularities (See column 4, lines 8-11), then coating the roughened substrate by grafting with a hydrophobic and oleophobic (transparent) film. A grafted fluorosilane film, having a uniform thickness of a few angstroms does not substantially modify the geometry of the underlying textured coating. The sizes of the irregularities, 7 nm and 45 nm, remain measurable, as they do

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also in the end-product. See column 5, lines 1-8. The <u>contact angle</u> of obtained surface is <u>170</u> degree (ultraphobic) (See column 5, lines 17-18). The method is applicable to various material surfaces such as surface of exterior windows of buildings or the glazing panels used in showers, as to the windows of transportation vehicles (See column 1, lines 57-61).

Azzopardi et al fail to teach that a blasting agent is corundum (<u>Claims 16, 17</u>) with sharp edges (<u>Claims 18</u>) having a particle size of less than 200 microns (<u>Claim 13</u>) or less than 130 microns (<u>Claim 15</u>), a blasting is carried out at pressure is 3-7 bar and at a distance from the die head to the surface of 1-3 cm (<u>Claim 19</u>) for 0.1-10 min/cm² (<u>Claim 20</u>).

As to claims 13, 15-18, JP 04168904 teaches that corundum having a particle size of 60-300 mesh (250-50 microns) is suitable for blasting a surface to form surface irregularities in the range of 0.5-50 microns (See Abstract).

It is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious); Ryco, Inc. v. Ag-Bag Corp., 857 F.2d 1418, 8 USPQ2d 1323 (Fed. Cir. 1988).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used corundum (including corundum having sharp edges) having a particle size of 60-300 mesh (250-50 microns) instead of sand for roughening a substrate surface in a method of Azzopardi et al since JP 04168904 teaches that corundum having a particle size of 60-300 mesh (250-50 microns) is suitable for blasting a surface to form surface irregularities in the range of 0.5-50 microns.



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As to claims 19, 20, one of ordinary skill in the art at knows that pressure, time and distance are result-effective parameters in a surface roughening process.

It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant blasting parameters (including those of claims 19 and 20) in a method of Azzopardi et al in view of JP 04168904 through routine experimentation depending on particular application in the absence of a showing of criticality.

13. Claims 13-20, 24-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al (US 5,324,566) in view of JP 04168904.

As to claims 14, 24-31, Ogawa et al disclose a method for producing a hydrophobic and oleophobic anti-contaminating surface (See column 1, lines 11-13; column 11, lines 66-68) on metal, glass, ceramic or plastic as a substrate (support material) (See column 12, lines 7-12) comprising roughening a surface of the substrate with sand blasting to form surface irregularities of 0.1-1.0 microns (See column 9, line 62; column 24, lines 51-56), then coating the roughened substrate with a hydrophobic and oleophobic monomolecular (transparent) film having thickness of about 15 angstroms (See column 25, lines 10-19). The method is applicable to various material surfaces (See column 13, lines 1-6) such as surface of vehicle parts (See column 14, lines 22-40), building materials, e.g. roof (See column 14, lines 46-54).

The Examiner Note: the a hydrophobic and oleophobic monomolecular film forms ultraphobic surface since according to Applicants ultraphobic surface is defined as a surface of

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substrate having irregularities coated a thin hydrophobic and/or oleophobic coating which does not smooth the surface irregularities.

Ogawa et al fail to teach that a blasting agent is corundum (<u>Claims 16, 17</u>) with sharp edges (<u>Claims 18</u>) having a particle size of less than 200 microns (<u>Claim 13</u>) or less than 130 microns (<u>Claim 15</u>), a blasting is carried out at pressure is 3-7 bar and at a distance from the die head to the surface of 1-3 cm (<u>Claim 19</u>) for 0.1-10 min/cm² (<u>Claim 20</u>).

As to claims 13, 15-18, JP 04168904 teaches that corundum, silica sand having a particle size of 60-300 mesh (250-50 microns) can be used for blasting a surface to form surface irregularities in the range of 0.5-50 microns (See Abstract). In other words, corundum is functionally equivalent to silica sand for roughening the surface.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used corundum (including corundum having sharp edges) having a particle size of 60-300 mesh (250-50 microns) instead of sand for roughening a substrate surface in a method of Ogawa et al since JP 04168904 teaches that corundum, silica sand having a particle size of 60-300 mesh (250-50 microns) can be used for blasting a surface to form surface irregularities in the range of 0.5-50 microns, and the selection of any of these known material as a blasting agent in Ogawa et al would be within the level of ordinary skill in the art.

As to claims 19, 20, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant blasting parameters (including those of claims 19 and 20) in a method of Ogawa et al JP 04168904 through routine experimentation depending on particular application in the absence of a showing of criticality.



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14. Claims 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azzopardi et al (US 6,299,981) or Ogawa et al (US 5,324,566) in view of JP 04168904, as applied above, and further in view of Li et al (US 5,751,541).

Azzopardi et al/Ogawa et al in view of JP 04168904 fails to teach that the roughened surface is coated with a thin layer of noble metal such as gold as adhesion promoter layer (Claims 21, 22).

Li et al teach that it is well known in the art that coatings of some materials could be successfully fabricated only on <u>noble</u> metal substrates, such as platinum, or <u>gold</u>, and could not successfully be made on non-noble metal substrates because the resulting films yielded poor adhesion and high resistance (See column 1, lines 32-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a layer of gold as an adhesion promoting layer in a method of Azzopardi et al/Ogawa et al in view of JP 04168904 depending on a material of coating to be adhered with the expectation of providing the desired improved adhesion of the coating, as taught by Li et al.

15. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Azzopardi et al (US 6,299,981) or Ogawa et al (US 5,324,566) in view of JP 04168904 and Li et al (US 5,751,541), as applied above, and further in view of Gesing et al (US 3,867,203).

Azzopardi et al/Ogawa et al in view of JP 04168904 and Li et al, as applied above, fail to teach that the roughened surface is coated with a thin layer of noble metal as adhesion promoter layer by precipitation.

Gesing et al teach that a gold layer can be uniformly deposited over entire substrate surface by precipitation from a diluted gold solution (See column 5, lines 1-5).

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made to have deposited a thin layer of gold onto a substrate surface in a method of Azzopardi et

It would have been obvious to one of ordinary skill in the art at the time the invention was

al/Ogawa et al in view of JP 04168904 and Li et al by precipitation from a diluted gold solution

with the expectation of providing the desired uniform covering of the entire substrate surface, as

taught by Gesing et al.

Response to Arguments

16. Applicant's arguments with respect to claims 13-31 have been considered but are moot in

view of the new ground(s) of rejection.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Elena Tsoy whose telephone number is (703) 605-1171. The examiner can

normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization

where this application or proceeding is assigned are (703) 872-9310 for regular communications

and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 308-0661.

Elena Tsoy

Elena Tsoy Examiner

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July 11, 2003